

EXHIBIT "B"



US006149867A

United States Patent [19][11] **Patent Number:** **6,149,867****Seidel et al.**[45] **Date of Patent:** **Nov. 21, 2000**

[54] **SHEATH FLUIDS AND COLLECTION SYSTEMS FOR SEX-SPECIFIC CYTOMETER SORTING OF SPERM**

[75] **Inventors:** George Seidel, LaPorte; Lisa Herickhoff; John Schenk, both of Fort Collins, all of Colo.

[73] **Assignee:** XY, Inc., Fort Collins, Colo.

[21] **Appl. No.:** 09/001,394

[22] **Filed:** Dec. 31, 1997

[51] **Int. Cl.:** G01N 33/00

[52] **U.S. Cl.:** 422/73; 422/82.05; 436/10; 436/18; 436/63; 436/164; 209/571; 209/576

[58] **Field of Search:** 422/68.1, 73, 82.05, 422/82.08, 82.09; 436/8, 10, 17, 18, 63, 164, 172; 435/283.1, 287.1, 2, 6; 209/571, 576

[56] **References Cited****U.S. PATENT DOCUMENTS**

Re. 32,350	2/1987	Bhattacharya	209/180.1
3,687,806	8/1972	Van den Bovenkamp	435/2
3,829,216	8/1974	Persidsky	356/36
3,894,529	7/1975	Shrimpton	600/35
4,009,260	2/1977	Ericsson	424/561
4,067,965	1/1978	Bhattacharya	424/561
4,083,957	4/1978	Lang	435/30
4,085,205	4/1978	Hancock	424/172.1
4,092,229	5/1978	Bhattacharya	435/2
4,155,831	5/1979	Bhattacharya	435/285.2
4,191,749	3/1980	Bryant	424/561
4,225,405	9/1980	Lawson	435/2
4,276,139	6/1981	Lawson	435/2
4,339,434	7/1982	Ericsson	424/561

4,362,246	12/1982	Adair	209/3.3
4,448,767	5/1984	Bryant	530/389.1
4,511,166	4/1985	Goldberg	436/503
4,680,258	7/1987	Hammerling et al.	435/7.21
4,698,142	10/1987	Muroi et al.	204/182.3
4,749,458	6/1988	Muroi et al.	204/182.3
4,999,283	3/1991	Zavos et al.	435/2
5,021,244	6/1991	Spaulding	424/561
5,135,759	8/1992	Johnson	424/561
5,346,990	9/1994	Spaulding	530/350
5,439,362	8/1995	Spaulding	424/185.1
5,514,537	5/1996	Chandler	435/2
5,589,457	12/1996	Witthark	514/12
5,660,997	8/1997	Spaulding	435/7.21

FOREIGN PATENT DOCUMENTS

WO 96/12171 10/1995 WIPO.

OTHER PUBLICATIONS

Karabian et al. *Journal of Dairy Science*, vol. 74, No. 11 pp. 3836-3848, 1991.

(List continued on next page.)

Primary Examiner—Wuareen M. Wallenhorst
Attorney, Agent, or Firm—Santangelo Law Offices, P.C.

[57] **ABSTRACT**

Improved flow cytometer system particularly adapted to use for sex-selected sperm sorting include enhanced sheath fluid and other strategies which minimize stress on the sperm cells, including a 2.9 percent sodium citrate sheath solution for bovine species and a hepes bovine gamete media for equine species. Improved collection systems and techniques for the process are described so that commercial applications of sperms samples as well as the resulting animals may be achieved.

32 Claims, 4 Drawing Sheets

